

REMARKS

Claims 12, 13, 15-18, 20-23, 25, 27, 28 and 30 are pending. By this Amendment, independent claim 12 is amended to even more clearly distinguish from the cited references. Claims 13 and 15, which the Office Action identifies as containing allowable subject matter, are rewritten in independent form. Support for the amendment of claim 12 can be found in Applicants' specification, for example, at page 14, line 26 through page 15, line 17. No new matter is added by the amendments.

Applicants note with appreciation the allowance of claims 17, 18, 20-23, 25 and 30 and the identification of allowable subject matter in claims 13, 15 and 27-28. Claim 13, from which claims 27 and 28 depend, is rewritten in independent form with claim 15. Applicants submit that the application is in condition for allowance as detailed below.

Claims 12 and 16 stand rejected under 35 U.S.C. §103(a) over De Doncker (U.S. Patent No. 5,373,195) in view of Deng (U.S. Patent No. 6,714,424). The rejection is respectfully traversed.

De Doncker in view of Deng fails to disclose or render obvious the combination of features recited in independent claim 12. In particular, De Doncker in view of Deng fails to disclose or render obvious "a control device controlling a switching duty of an upper arm and a lower arm included in said voltage converter so that an influence of a dead time of said voltage converter is removed, when a voltage command value of said voltage conversion is at least a power supply voltage and at most a predetermined voltage, wherein said predetermined voltage is a minimum voltage that can secure the dead time of said voltage converter" as recited in independent claim 12.

Neither De Doncker nor Deng discloses or suggests that when a voltage command value of voltage conversion by the voltage converter is in a range defined as at least a power supply voltage and at most a minimum voltage, the switching duty is controlled so that an

influence of dead time is removed. De Doncker discloses a system including a dc-to-dc converter, and Deng discloses a process for eliminating a narrow pulse based on a pulse width modulated method (PWM). The features recited in independent claim 12, for example, can prevent the on-duty of the upper arm of the voltage converter from being partly occupied by the dead time, and thus oscillations of the output voltage of the voltage converter can be suppressed.

Additionally, in responding to Applicants' arguments filed June 1, 2009, the Office Action alleges that the features of claim 12 are a mere optimization of Deng and that it would have been obvious to one of ordinary skill in the art at the time of the invention to set W_{min} to the dead time at least for the reasons of optimizing through routine experimentation. However, the Office Action cites no support or reasoning for this conclusive statement. The Office Action is using impermissible hindsight reasoning. Thus, claim 12 is patentable. Accordingly, claim 16 also is patentable by its dependence on claim 12 for at least the reasons explained above regarding claim 12. Withdrawal of the rejection is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of all pending claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Amendment Transmittal

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